

Serial No. 09/692,668
December 8, 2003
Reply to the Office Action dated July 8, 2003
Page 7 of 11

REMARKS/ARGUMENTS

Claims 1, 4, 5, 7, 9, 10, 13, 14, 16, 18, and 19 are pending in this application. By this Amendment, Applicants ADD claim 19.

Claims 1, 4, 5, 7, 10, 13, 14, and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ago et al. (U.S. 5,684,437) in view of Horiuchi et al. (JP 9-294045). Claims 9 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ago et al. and Horiuchi et al. as applied to claims 1 and 10 and further in view of Kadota et al. (U.S. 5,714,830). Applicants respectfully traverse the rejection of claims 1, 4, 5, 7, 9, 10, 13, 14, 16, and 18.

Claim 1 recites:

"A surface acoustic wave device comprising:
a longitudinally coupled resonator filter including:

a piezoelectric substrate having a pair of substrate edges and an upper surface therebetween and including a main region and a bottom surface, the piezoelectric substrate having at least one step formed therein and extending from one of said pair of substrate edges to an inner edge of the at least one step located spaced from the one of the pair of substrate edges, the inner edge of said at least one step being arranged to contact the main region and to extend from the upper surface toward the bottom surface of the piezoelectric substrate inside the one of the pair of substrate edges;

at least two interdigital transducers provided on the main region of the piezoelectric substrate such that shear horizontal type surface acoustic waves excited by the interdigital transducer and having a wavelength of λ are reflected by the at least one inner edge;

wherein **a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ** , and a depth of the at least one step is in the range of about 2λ to about 6λ ." (emphasis added)

Applicants' claim 1 recites the features of "at least two interdigital transducers provided on the main region of the piezoelectric substrate" and "a distance L between

Serial No. 09/692,668
December 8, 2003
Reply to the Office Action dated July 8, 2003
Page 8 of 11

the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ ." Applicants' claim 10 recites features which are similar to features recited in Applicants' claim 1, including the above emphasized features. With the improved features of claims 1 and 10, Applicants have been able to provide a surface acoustic wave device in which desired resonance characteristics and pass-band characteristics are reliably obtained by reducing the ripples caused by bulk waves (see, for example, the second full paragraph on page 2 of the originally filed Specification).

First, Applicants' claims 1 and 10 recite the feature of "at least two interdigital transducers provided on the main region of the piezoelectric substrate." Neither Ago et al. nor Horiuchi et al. teaches or suggests this feature.

Both Ago et al. and Horiuchi et al. clearly teach the use of a single interdigital transducers, **NOT** the use of at least two interdigital transducers as recited in Applicants' claims 1 and 10. Further, since Ago et al. and Horiuchi et al. clearly fail to teach or suggest the claimed arrangement and function of the at least two interdigital transducers as recited in Applicants' claims 1 and 10. Thus, Ago et al. and Horiuchi et al. clearly fail to teach or suggest the feature of "at least two interdigital transducers provided on the main region of the piezoelectric substrate" and the arrangement and function thereof as recited in Applicants' claims 1 and 10.

Second, Applicants' claims 1 and 10 recite the feature "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ ." Neither Ago et al. nor Horiuchi et al. teaches or suggests this feature either.

Both Ago et al. and Horiuchi et al. are completely silent regarding the distance L between the inner edge of the at least one step and the corresponding one of the substrate edges. Thus, Ago et al. and Horiuchi et al. certainly fail to teach or suggest the feature of "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ " as

Serial No. 09/692,668
December 8, 2003
Reply to the Office Action dated July 8, 2003
Page 9 of 11

recited in Applicants' claims 1 and 10.

The Examiner alleged that Figs. 2, 4 and 5 of Ago et al. teaches "an interdigital transducer 4 provided on main region wherein a distance L is between at least one inner edge and corresponding one of the substrate edges is about $\lambda/10$ to about 8λ ." Applicants respectfully disagree.

Contrary to the Examiner's allegations, Ago et al. fails to teach or suggest any specific distance between an inner edge of a step and a substrate edge, and certainly fails to teach or suggest "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ ." as recited in Applicants' claims 1 and 10. In fact, Ago et al. fails to teach or suggest "at least one step formed therein and extending from one of said pair of substrate edges to an inner edge of the at least one step located spaced from the one of the pair of substrate edges" as recited in Applicants' claims 1 and 10, and thus, Ago et al. clearly cannot teach or suggest "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ ." as recited in Applicants' claims 1 and 10.

Therefore, the Examiner has failed to establish a prima facie case of obviousness of the claimed invention because all the claim features must be taught or suggested by the prior art. See In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) and MPEP § 706.02(j) and § 2143.03.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Ago et al. (U.S. 5,684,437) in view of Horiuchi et al.

The Examiner has relied upon Kadota et al. to allegedly cure various deficiencies in the combination of Ago et al. and Horiuchi et al. However, Kadota et al. fails to teach or suggest the features of "at least two interdigital transducers provided on the main region of the piezoelectric substrate" and "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of

Serial No. 09/692,668
December 8, 2003
Reply to the Office Action dated July 8, 2003
Page 10 of 11

about $\lambda/10$ to about 8λ " as recited in Applicants' claims 1 and 10.

Applicant has added new claim 19 that recites the features of "at least two interdigital transducers provided on the main region of the piezoelectric substrate" and "a distance L between the inner edge of the at least one step and the corresponding one of the substrate edges is in the range of about $\lambda/10$ to about 8λ ." Applicants respectfully submit that claim 19 is allowable because, as described above, the cited prior art fails to teach or suggest these features in combination with the other features recited in claim 19.

Accordingly, Applicants respectfully submit that Ago et al., Horiuchi et al., and Kadota et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claims 1, 10 and 19 of the present application. Claims 4, 5, 7, and 9 depend upon claim 1 and are therefore allowable for at least the reasons that claim 1 is allowable. Claims 13, 14, 16, and 18 depend upon claim 10 and are therefore allowable for at least the reasons that claim 10 is allowable. As argued above, Applicants respectfully submit that claim 19 is allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicants petition the Commissioner for a TWO-month extension of time, extending to December 8, 2003, the period for response to the Office Action dated July 8, 2003.

Serial No. 09/692,668
December 8, 2003
Reply to the Office Action dated July 8, 2003
Page 11 of 11

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: December 8, 2003


Attorneys for Applicants

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT LLP
10400 Eaton Place, Suite 312
Fairfax, VA 22030
Telephone: (703) 385-5200
Facsimile: (703) 385-5080